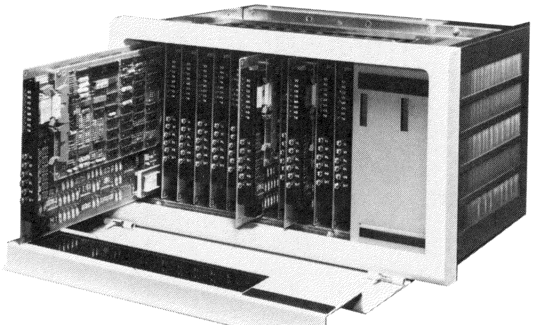
EK-DF112-IS-002

COMMUNICATION PRODUCTS

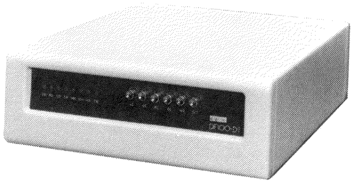
PRODUCT INFORMATION SHEET

DF112 Modem Module
DF100 Series Modem Enclosures

MULTIPLE MODEM ENCLOSURE



STANDALONE DESK TOP ENCLOSURE



FEATURES

- Operates at 300 b/s or 1200 b/s Asynchronous or 1200 b/s Synchronous
- Provides full-duplex, operation on 2 wire dial-up telephone service or 2 wire private/leased line telephone service
- Meets FCC and DOC requirements for use in US and Canada: FCC Reg# A0994Q-13634-DM-E; DOC CERT# 192 859 AB; Ringer Equivalence Number 0.3B
- Contains new auto dial functions including storage for 5 frequently called (26 digit) numbers. Auto dial is compatible with both Touch Tone™ and rotary pulse dialing; even in the same number string
- Auto dialer responds to a variety of commands issued either by terminal control or program control
- Contains a variety of user switch selectable options allowing application flexibility
- Compatible with exclusion key telephone and programmed service
- Available with standalone modem enclosure, or multiple modem (rack mount) enclosure.
- Provides extensive loopback and selftest features, including remote digital loop

* Touch Tone is a Trademark of AT&T

GENERAL DESCRIPTION

The DF112 Modem provides full-duplex, asynchronous or synchronous, binary serial data communications over 2 wire, dial-up telephone service or 2 wire, private/leased telephone service.

The DF112 operates at either 300 bits per second (b/s) or 1200 b/s. Speed is selected by the High Speed (HS) panel switch.

The DF112 is functionally compatible with DIGITAL's DF03 modems and Bell System 103J and 212A™ modems.

The new auto dial feature accommodates both rotary pulse dialing and touch tone dialing of up to 26 digit numbers. To save time, the autodialer does not require the usual hyphen or spaces in the number sequence.

Test features, including Analog Loop, Digital Loop, Remote Digital Loopback and Selftest are standard features of the DF112 modem.

New modular design allows modems to be installed in DF100 series standalone modem enclosures or in DF100 series multiple modem enclosures.

The standalone modem enclosure is a compact, sturdy unit which contains an integral power supply and accommodations for a single modem module. Installation is quick and easy.

The multiple modem enclosure houses up to 12 modem modules and is designed to support all of the new modular modem products.

The multiple modem enclosure includes a standard 120 Vac power supply and provisions for a second power regulator module. The modem module and power regulators are easily installed.

The material contained in this sheet provides brief and concise information about the DF112 modems. For more detailed information refer to the *DF112 User's Guide* (order number EK-DF112-UG).

Installing DF112 modules is simple and can be performed by anyone. The only possible concern for the nontechnical installer is the selection of nonstandard modem options. Each modem module contains a variety of user-selectable options that define different operating characteristics of the modem. These modems come from the factory preset to select the most popular options. It is important to note that these factory selections are compatible with DF03 and Bell 103J and 212A™ applications. In most cases, all that needs to be done is to verify that factory selections are correct and install the modules. If there is a need to change these settings, refer to the *DF112 User's Guide* for an explanation of each option, or contact the nearest DIGITAL Field Service Representative.

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* 103J and 212A are Trademarks of Western Electric

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SELECTING MODEM OPTIONS

Before installing the modem module in the selected enclosure, modem options must be compatible with the desired configuration. Standard factory selections (in blue) are compatible with DF03 and Bell 103J/212A™ configurations.

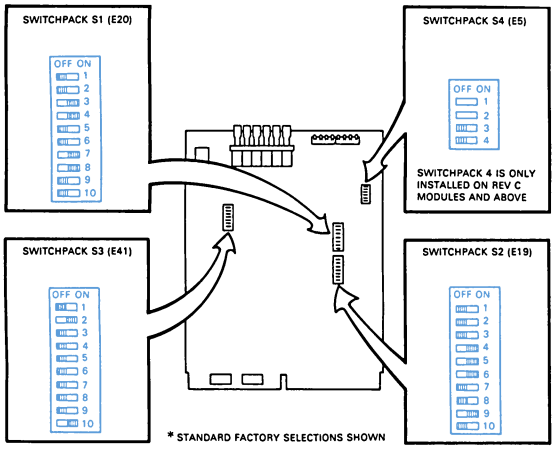
Different applications or configurations may require specific option selections. For example, certain options must be selected if programmed RJ41S or RJ45S telephone service is installed.

Once modules are installed and connected, test each module. Refer to the *DF112 User's Guide* for details.

SWITCHPACK 1 SELECTIONS

Option	Selection	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Terminal Timing	Internal External	OFF ON									
Slave Timing	Enabled Disabled		ON OFF								
Loss of Carrier Disconnect	Disabled Enabled			OFF ON							
Character Length	9 Bits 10 Bits				OFF ON						
Respond to RDL	Enabled Disabled					OFF ON					
Auto Answer	Auto Manual						OFF ON				
Interface Speed Indication	Enabled Disabled							ON OFF			
DSR Indication in ANL	Enabled Disabled								ON OFF		
Speed Mode	Dual High Speed Only									OFF ON	
CTS, CAR Detect Interface Indication	Separate Common										OFF ON

DIAGRAM 1



If you are not sure about option selections, see chapter 5 of the User's Guide for a description of each option.

SWITCHPACK 2 SELECTIONS

Option	Selection	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Mode Select*	Async Sync	OFF ON									
Receiver Timing*	Enabled Disabled		ON OFF								
Transmit Timing*	Enabled Disabled			ON OFF							
Send Space Disconnect*	Enabled Disabled				ON OFF						
Long Space Disconnect*	Enabled Disabled					ON OFF					
Interface Test Mode Indicate	Enabled Disabled						ON OFF				
Dumb Terminal	Enabled Disabled							ON OFF			
Interface Speed Select	Enabled Disabled								ON OFF		
Transmit Level Normal†	Enabled Disabled									ON OFF	
Transmit Level Programmed†	Enabled Disabled										ON OFF

* These options must be set opposite to the standard factory settings for synchronous 1200 b/s operations.

† These switches must be set opposite; that is, only one may be enabled, the other must be disabled.

DIAGRAM 1 (Cont)

SWITCHPACK 3 SELECTIONS

Option	Selection	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Parity Select	Parity	ON									
	No parity	OFF									
Local Echo	Enabled		ON								
	Disabled		OFF								
Response Message	Long			OFF							
	Short			ON							
Reserved					NOT USED						
MI	Disabled					OFF					
	Enabled					ON					
Parity Type	Odd						ON				
	Even						OFF				
Digital Loop/ Private Line	Digital Loop							OFF			
	Private							ON			
PSTN or PLTN	PSTN								OFF		
	PLTN								ON		
Dial Tone Bypass*	Enabled									ON	
	Disabled									OFF	
Normal Dial Tone *	Enabled										ON
	Disabled										OFF

* Only one may be ON, the other must be OFF

SWITCHPACK 4 SELECTIONS

Option	Selection	S1	S2	S3	S4
Reserved		NOT USED	NOT USED		
Interface Remote Digital Loop Control	Enabled			ON	
	Disabled			OFF	
Interface Local Loop Control	Enabled				ON
	Disabled				OFF

NOTE

Switchpack S4 is installed on all DF112-AM REV C Modules and above. Modules below REV C do not include a switchpack S4 and the functions associated with switchpack S4 are hardwired and always enabled.

INSTALLING STANDALONE DESK TOP MODEMS

A stick-on front panel window is included with each modem module. This window is only used if the module is being installed in a standalone modem enclosure. Place the window in the recessed area of the front cover to make sure that the pushbutton holes line up correctly, then peel off the backing from the window and permanently attach it to the cover. This window is not used if the module is being installed in the multiple modem enclosure.

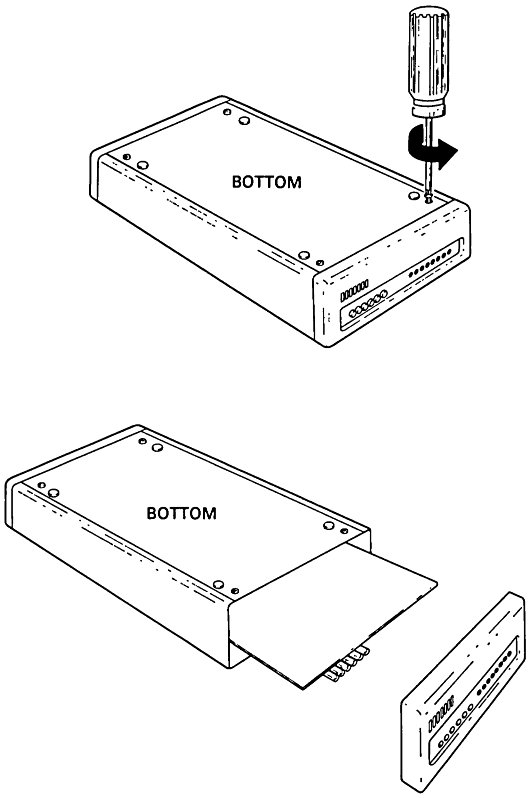
STEP 1 Visually inspect module for obvious defects.

STEP 2 Verify that option switches are set to the desired position (see Diagram 1). Selections in blue indicate factory settings.

STEP 3 From the bottom, remove the two slotted screws closest to the front cover as shown in Diagram 2 and remove the cover.

STEP 4 With the enclosure up-side-down, insert module (components facing down) into the card guides and push module into the enclosure until it touches the backplane. Then press firmly until the module edge connector snaps into it's mating backplane connector. Replace the front cover and refer to the next section, "Connecting Standalone Modems".

DIAGRAM 2



CONNECTING STANDALONE MODEMS

The DF112-AA standalone modem can be connected to one of three types of telephone service.

1. RJ11C (US) or CA11A (CAN) Service (Diagram 3)
2. RJ41S/RJ45S (US) or CA41A/CA45A (CAN) Service (Diagram 4)* or
3. Private/Leased Line Service (Diagram 5)*

* These configurations require nonstandard option selections. For details see user's guide.

DIAGRAM 3

RJ11C (CA11A) STANDARD TELEPHONE SERVICE CONNECTIONS

STEP 1 Unplug telephone from wall box and connect to right-hand jack on the rear cover.

STEP 2 Connect telephone extension cable from left-hand jack on rear cover to wall box.

STEP 3 Connect data terminal equipment (DTE) device to interface connector.

STEP 4 Plug ac power cord into modem, then into ac wall outlet.

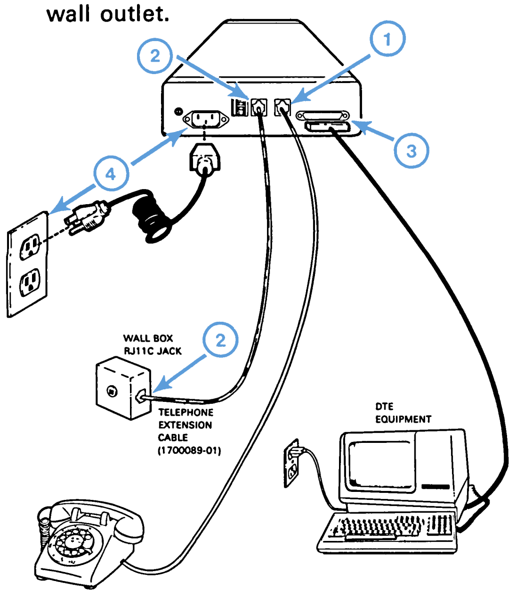


DIAGRAM 4

RJ41S/RJ45S (CA41A/CA45A) EXCLUSION KEY TELEPHONE SERVICE CONNECTIONS

CONFIGURATIONS:

A. If using exclusion key telephone, MI option (switchpack 3, switch 5) on DF112-AM module must be enabled.

B. If programmed service is installed, the Transmit Level Programmed option (switchpack 2, switch 10) must be enabled. Also, an 8-wire telephone extension cable (not supplied with modem) such as MOD TAP 558-015 or Virginia Plastics 105-KK-15DS-SW or equivalent must be used in place of the standard 4-wire cable.

C. If programmed service is not used, the standard 4-wire cable (supplied) can be used.

STEP 1 Connect telephone extension cable from left-hand jack on the rear cover to the wall box.

STEP 2 Connect DTE device to interface connector.

STEP 3 Plug ac power cord into modem, then into ac wall outlet.

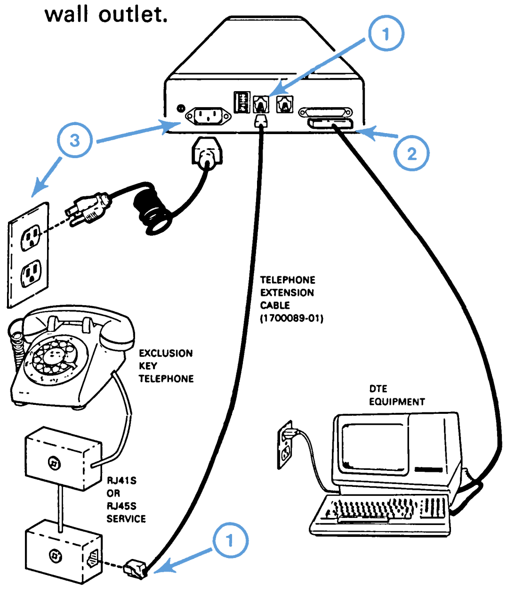


DIAGRAM 5

PRIVATE/LEASED LINE CONNECTIONS

Switchpack 3, switch 7 and 8 must be set to select PRIVATE LINE.

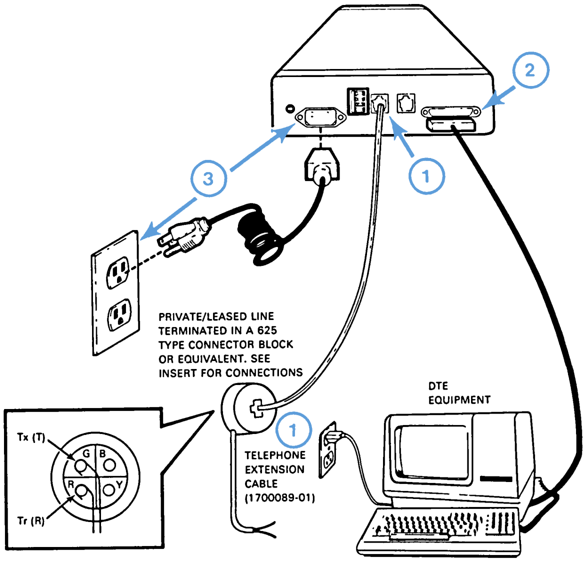
STEP 1 Connect telephone extension cable from left-hand jack on the rear cover to a 6 position modular wall jack or equivalent.

NOTE

If private line connections are not terminated in a 625 type connection block or compatible with 6 position modular jack or equivalent, the user is responsible for making whatever adaptive connections necessary to accommodate private line connections.

STEP 2 Connect DTE device to interface connector.

STEP 3 Plug ac power cord into modem, then into ac wall outlet.



INSTALLING MODEM MODULES IN MULTIPLE MODEM ENCLOSURES

The DF100 series of multiple modem enclosures may contain any combination of the new modem products, provided the maximum current capacity (see table below) of the +5 Vdc power supply is not exceeded. Be sure to verify and add the current requirements of each module installed, for total current requirements.

The maximum +5 Vdc output current of the DF100 series multiple modem enclosures are:

DF100-RM (below serial number KA2000)	= 3.0 A
DF100-RM (above serial number KA2000)	= 6.0 A
DF100-RT	12.0 A

The DF112 +5 Vdc current requirement is 0.210 A

STEP 1 Visually inspect module for obvious defects.

STEP 2 Verify that option switches are set to the desired position (see Diagram 1). Selections in blue indicate factory settings.

STEP 3 The front door, the module retainer bar, and the filler card must be removed to install the modem module (see Diagram 6). Be sure to save the filler card(s). If any module is ever permanently removed, the filler card must be put back.

STEP 4 Insert module into selected slot, seating module firmly into edge connector. When completed, be sure to replace module retainer bar and front door.

STEP 5 Log newly installed module(s) on the identification table on the inside surface of the front door.

CONNECTING MODEM MODULE IN MULTIPLE MODEM ENCLOSURES

CONFIGURATIONS:

A. Switched telephone service connections are made at connector J13 using cable type B25A (not supplied) or equivalent connected to RJ21X (US) or CA21A (CAN) service.

B. Connections for private line service is also made at J13 and can be accommodated on a 66B4-25 type connector block or equivalent or on the RJ21X if it is already installed for switched lines.

C. Data Terminal Equipment (DTE) connections are made to J1 through J12.

STEP 1 Connect DTEs to selected (J1-J12) positions using cable BC22-E (Async) or BC22-F (Async or Sync) or equivalent (see Diagram 7).

STEP 2 If using PSTN, connect B25A type cable or equivalent to J13 and RJ21X or CA21A service (see Diagram 8).

STEP 3 If using PLTN, make 2 wire connections to the appropriate TIP & RING pins (slot dependent) at J13 or type 66B4-25 connector block or equivalent (see Diagram 8).

DIAGRAM 6

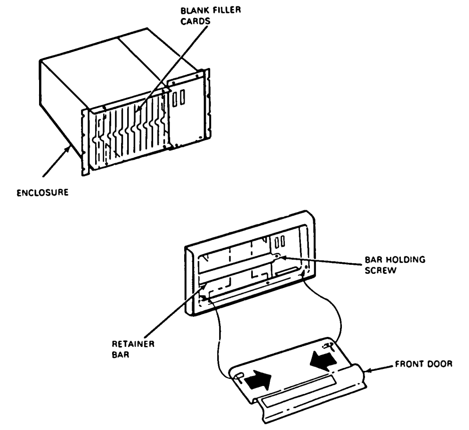


DIAGRAM 7

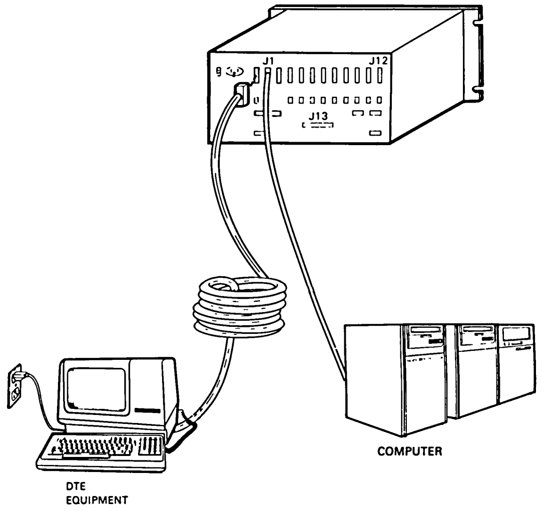
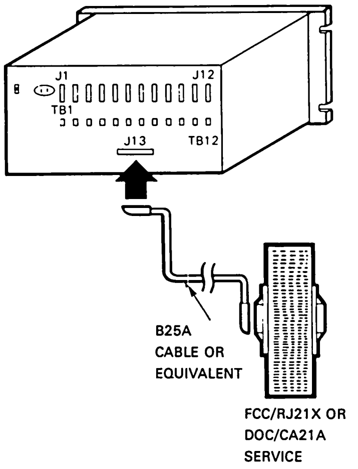


DIAGRAM 8

CONNECTOR J13 PINOUTS

LINE/ SLOT	RING	TIP
1	PIN 1	PIN 26
2	PIN 2	PIN 27
3	PIN 3	PIN 28
4	PIN 4	PIN 29
5	PIN 5	PIN 30
6	PIN 6	PIN 31
7	PIN 7	PIN 32
8	PIN 8	PIN 33
9	PIN 9	PIN 34
10	PIN 10	PIN 35
11	PIN 11	PIN 36
12	PIN 12	PIN 37



INSTALLING MULTIPLE MODEM ENCLOSURE POWER REGULATOR MODULES

For the DF100-RM multiple modem enclosure, power regulator 2 is optional and provides a back-up for power regulator 1.

For DF100-RT, power regulator 2 is shipped with the enclosure as standard equipment, to share the +5Vdc load. In this configuration, power regulator 2 will provide redundant back-up for the +12Vdc output, but NOT the +5Vdc output.

The following procedure is provided for installing the DF100-PR optional power regulator in a DF100-RM enclosure. The procedure also applies when replacing either of the regulator modules in the DF100-RT. The only difference is the interconnect cable. For the DF100-RM, cable 7019305 is used. For the DF100-RT, cable 70-20950-01 must be used. These two cables are not interchangeable.

STEP 1 Visually inspect the module for obvious defects.

STEP 2 Unplug power cord from the ac outlet.

STEP 3 Remove the front door panel assembly (see Diagram 9).

STEP 4 Remove the power supply electro-magnetic interference (EMI) panel (see Diagram 9).

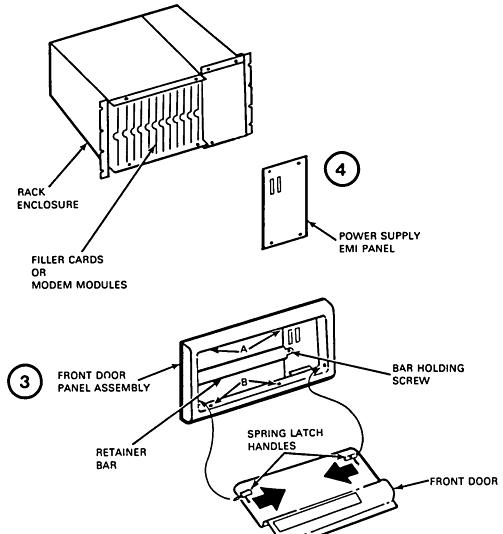
STEP 5 Remove existing power regulator module from its mounting slot and attach the interconnecting cable between the two regulators (see Diagram 10).

STEP 6 Insert both regulator modules into card guides, with the LEDs on top and facing out and slide both modules to the backstop.

Note that the regulator modules do not plug into any type of edge connectors, they simply mount in each slot. Connections are made using the correct cable.

STEP 7 Replace EMI panel and front door panel assembly. Power up the enclosure and verify that all power LEDs come ON.

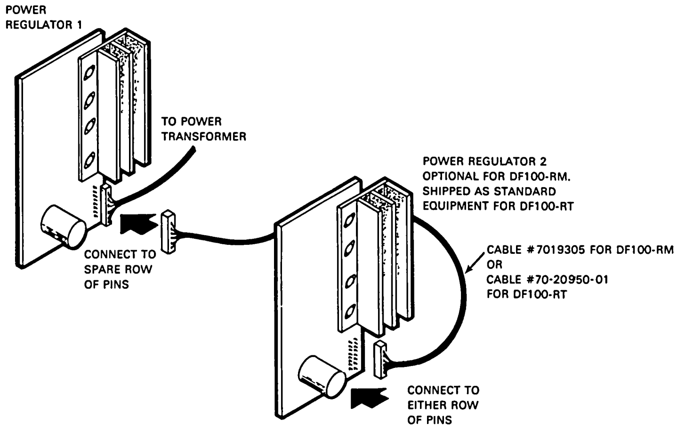
DIAGRAM 9



③ REMOVE FRONT DOOR PANEL ASSEMBLY
- REMOVE FOUR MOUNTING SCREWS [TWO ON TOP FLANGE (A) AND TWO ON BOTTOM FLANGE (B)]

④ REMOVE POWER SUPPLY EMI PANEL
- REMOVE FOUR MOUNTING SCREWS IN EACH CORNER OF THE PANEL

DIAGRAM 10


POWER REGULATOR 1
TO POWER TRANSFORMER
CONNECT TO SPARE ROW OF PINS
POWER REGULATOR 2 OPTIONAL FOR DF100-RM. SHIPPED AS STANDARD EQUIPMENT FOR DF100-RT
CABLE #7019305 FOR DF100-RM OR CABLE #70-20950-01 FOR DF100-RT
CONNECT TO EITHER ROW OF PINS